

Physikalisches Kolloquium



Thursday, 14.01.2016, 17:00, HS 100
Reception with coffee & cookies 16:45

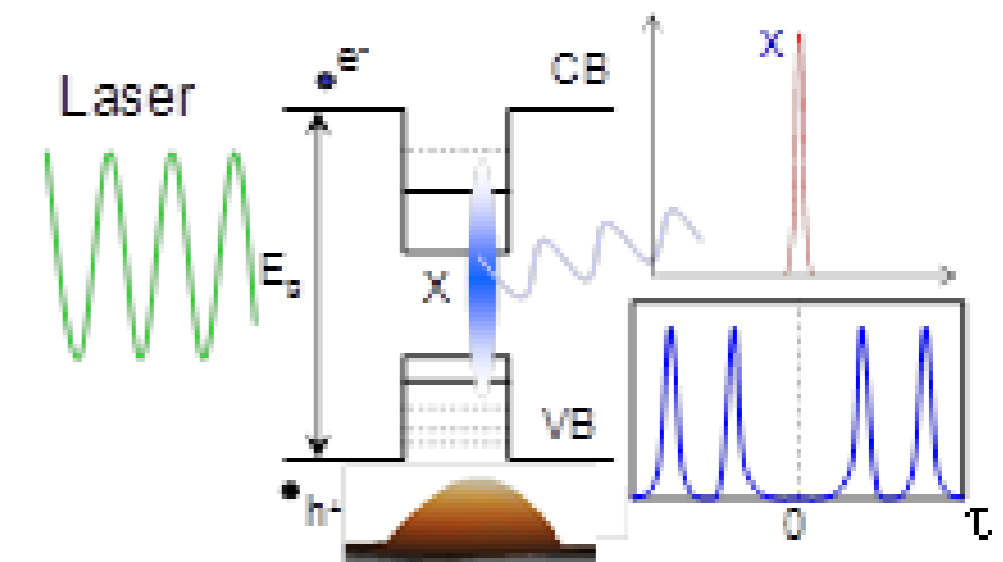
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ANTRITTSVORLESUNG

Recent progress in solid state quantum emitters for long distance quantum communication

Abstract

Quantum dots (QDs) could serve as building blocks for future quantum information technology. QDs are often called “artificial atoms” because they confine charges in discrete energy states analogous to the orbital energy levels of atoms. However, QDs can be “tuned” during production to emit photons at a desired wavelength. Sharing these photons over long-distances through glass fiber requires sources of single-photons operating at telecom wavelengths, which offers the lowest attenuation losses in silica fibers. Quantum repeaters hold the promise to solve the problems of photon losses to realize long-distance quantum communication. In this talk, we review our recent progress in QDs growth and single-photon emitters. Fabrication and properties of QDs emitting at telecom C-band as material platforms for quantum repeater to overcome the photon losses in the fiber are discussed. Furthermore, novel results on integration of QDs in photonic crystals, coherent state preparation and g-factors in QDs emitting at telecom wavelengths are presented.



All of you interested in physics are cordially invited!